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ABSTRACT

The compilation of cross-institutional comparative information to support a college or university's goals is an effective yet politically dangerous venue of institutional research activity. Selecting a group of institutions for comparison can often be a major task involving external governing agencies, key institutional administrators, and faculty. Although selection of proper institutions and correct variables for comparison may appear inconsequential, issues of prestige, image, desirability, and competition come into play, as each constituency strives to maximize its political position. To resolve this dilemma, many groups of peer institutions have entered into various data exchange programs in which members share valuable information on costs, enrollment, facilities, student retention, budget, resource allocation, faculty workload, and faculty salaries. This paper is concerned with the translation of such raw data into usable information. Issues covered include selection of peer institutions, selection of variables for comparison (such as mission, funded research, graduate degrees awarded, degree level, academic orientation, and admissions procedures), methods of presentation, and tailoring for particular audiences. Since an inappropriate or unsuitable choice in any of these areas could negate the original comparison goals, the paper also explores potential pitfalls in the comparison process. (MLH)

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Using Institutional Comparisons for Administrative Decision Support

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Using Institutional Comparisons for Administrative Decision Support

Abstract

An important and influential function of institutional research is the compilation of cross-institutional comparisons. The process involves the institutional researcher in the very center of the institution's decision-making activities, while providing visibility, credibility and validity for the function. Yet the process of putting together and presenting such comparisons can be politically sensitive. This paper delineates a four-part process for constructing cross-institutional comparisons from raw data, with both examples to emulate and pitfalls to avoid.

Introduction

The compilation of cross-institutional comparative information in order to support the goals of a college or university is an effective yet politically dangerous venue of institutional research activity. Every institution has its academic peers, but the actual selection of a group of institutions for comparison can often be a major task involving external governing agencies, key institutional administrators and faculty. While selection of proper institutions and correct variables for comparison may on the surface appear inconsequential, issues of prestige, image, desirability and competition (both academic and fiscal) come into play, as each constituency within the institution strives to maximize its political position. Depending on the situation, this could result in either positive or negative comparisons.

To aid in institutional comparisons, many groups of peer institutions have entered into various kinds of data exchange

programs. These data exchange groups are categorized by type of institution and by region. Membership in these groups can provide large amounts of valuable information on costs, enrollment, facilities, student retention, budget, resource allocation, faculty workload and faculty salaries. For institutional researchers, the key issue in college and university comparisons is how to take this amalgam of data and turn it into something the administration can use to forward the institution's goals. It is the translation of this raw data into usable information that is the focus of this paper. The issues to be covered in this paper include:

- selection of peer institutions;
- selection of variables for comparison;
- methods of presentation; and
- tailoring for particular audiences.

An inappropriate or unsuitable choice in any of these areas could negate the original goal in making the comparison in the first place. Many of these potential pitfalls will be explored in the paper.

Institutions which would particularly benefit from conducting comparative studies are those that find themselves scrambling for scarce resources while other, more favored, institutions appear to be garnering more than their fair share. Isolating their relative position in the academic and fiscal spectrums could indicate avenues for improvement and emphasis. Those institutions that already have achieved their desired level of excellence can benefit from comparative studies as ways of validating their preeminent

positions. In addition, comparative studies can be used to support the institutional self-evaluation and assessment processes. Finally, these studies can provide information for the formulation of goals, and for the implementation of new activities and academic programs.

Selection of Peer Institutions

Comparative data collection among institutions of higher education is difficult both to conceptualize and to operationalize into an effective informational tool. Differences in data collection procedures can add an element of error to even the simplest of comparisons. In calculating minority and nonminority enrollments, for instance, each institution within the network may include or exclude different subgroups in the minority population. Accurate lists of all groups to be included under a heading may help, however institutions may have specific reasons for making the calculations they do--whether to minimize or to maximize certain populations. An institutional comparison with a small "n," therefore, may require greater care in the selection of peer institutions as well as greater familiarity with the data collection processes of participating institutions.

Another common pitfall when working within a pre-existing information network, is that the differences between the member institutions may seem to preclude an effective comparison--even within groups which are united by one or more common features. The percentage of commuter students, the average age of the student

body, the availability of financial aid and the differing levels of university funding may all contribute to differing needs and levels of attainment among institutions which are similar in size, age, enrollment, mission and location. Since absolute parallels for a particular institution may be difficult, if not impossible, to locate, institutional researchers are put in the position of having to "satisfice" with the information available.

While participation in information-sharing networks is one of the easiest and least costly ways of obtaining information for comparison, some caution is necessary in releasing preprepared reports. (Some networks feature comparisons on selected topics prepared by a participating institution and disseminated to all members.) It is inevitable that one or more institutions in the network will not be appropriate for comparison. It is imperative that such institutions be excluded from the data set--either by omitting them from the analysis, or by isolating them as outliers. Therefore, it is advisable that individual institutions perform their own analysis and tailor the reported results to their audience. This is not a mandate to play fast and loose with the facts, nor to selectively compare to an institution's advantage or detriment, but rather to prune the available data in order to avoid a deluge of spurious facts which would obscure the central comparison.

Selection of Variables

Usually the selection of institutions for comparison is contingent on the particular dependent and independent variables being addressed. Likewise, the selection of variables is often contingent on the availability of a group for comparative inquiry. For a study of faculty workload, institutions with similar enrollments and numbers of faculty should be chosen; for a study of parking, institutions with similar enrollments and locations should be chosen. With this in mind, however, there are several categories of variables which should be considered when selecting institutions for comparison.

Mission

An institution's mission, whether teaching- or research-oriented, two- or four-year should be considered. Among state university systems, there is a definite hierarchy among institutions which may or may not lend themselves to comparison. For instance, a state's flagship institution may be comparable to another institution in the system with regard to enrollment and faculty workload, however, the comparison would not be appropriate for state appropriations or academic square footage.

Funded Research

The amount of funded research an institution performs is another significant characteristic to consider when selecting institutions for comparison. This variable can account for significant differentials in state appropriations and other funding, in amount of classroom and research space, and in faculty workload.

Graduate Degrees Awarded

The size of a graduate program can influence comparisons in two ways--the size of enrollment and faculty workload. Graduate programs not only add to the number of students attending an institution, but residency requirements also may reflect a student population which is not necessarily in attendance on a day-to-day, term-to-term basis. In addition, the faculty-intensive nature of graduate study--smaller class size, individual tutorials and advising, and thesis and dissertation committees--can lead to asymmetries in faculty workload. In many cases, it may require as many faculty to administer a large graduate program as a small one. In addition, the amount of academic space may also be affected due to small classes, graduate research assistant and teaching assistant office space, and specialty research facilities.

Degree Level

The level of highest degree attainable at an institution--associate's, bachelor's, master's, doctoral, professional or specialty--may also influence variables for comparison. Junior colleges may have different demographic variables than their four-year counterparts, including average age of students, number of commuting students, number of evening classes offered, grade-point average, and SAT and ACT scores.

The smaller size and faculty-intensiveness of graduate programs may also serve to skew comparisons among otherwise similar institutions. This variable is tied to funded research in that

institutions with graduate programs are usually able to attract larger amounts of funded research.

Academic Orientation

Whether the institution has a liberal arts, career or professional orientation also can have a significant impact on comparison. Institutions which place more emphasis on the natural sciences generally garner proportionally larger amounts of funded research than those which focus on a purely business- or professional-oriented curriculum. In addition, business and professional programs are more likely to attract older, part-time students than liberal arts programs. These institutions often have less room for diversity in the core curriculum, and therefore generally do not lend themselves to accepting large numbers of transfer students, or to flexibility in and to switching of majors.

Admissions

Choosing institutions with comparable admissions procedures and criteria is also an important factor. The first step is to determine whether an institution has an open or selective admissions process. From there, a categorization of degrees of selectivity should be done. In order for academic comparisons to be accurate, it is necessary to compile data from institutions with similar levels of selectivity in admissions.

Presentation Methods

Graphic presentations are the cornerstone of any comparative presentation. Visual aids must be easily understood and aestheti-

cally appealing in order to be an effective presentation of the information. Bar graphs sorted into order (either ascending or descending) are an effective way of highlighting an institution's relative position in a particular area. In addition, the utilization of color in graphic displays adds contrast and interest to otherwise gray presentations.

Figure 1 is a university comparison, illustrating the ratio of university square footage allocated for academics to the amount of quarter credit hours taught in each university. This graph was used by the president of Georgia State University (GSU) in a presentation to the university's governing board, during which he argued that GSU needed an increase in funding in order to finance additional classrooms. The low position of GSU is highlighted because it is placed between the institution at the high end of the scale (MCG) and the institution ranked closest to GSU (GIT). Because the graph features a limited number of examples--making it dramatic and simplistic--it is appropriate for presentation to a general audience which is not necessarily familiar with the information being presented.

Figure 2 is also a university comparison of academic square footage. For the last five years, these tables have been included in the GSU Fact Book, which is distributed to university and University System personnel, to outside agencies, and to the media. Thus, the information in the table is available to a wide variety of recipients. The tables provide detailed information on specific and exact comparisons, and limit the comparisons to a small number

of familiar cases. The last table interprets the raw data provided in the previous two. Each table follows the other in a natural progression to create a picture of GSU as a university which uses its limited space wisely.

Figure 3 is a system-level ratio of classrooms by quarter credit hours generated. This graph was used as part of a general study on classroom space; the audience was primarily internal administrators. The examples used are all institutions in the University System and are thus familiar to the administrators. The top eight institutions on the scale are four- and two-year colleges. The schools are arranged in ascending order as a way of highlighting GSU's position at the bottom. In the version of this graph presented to the administrators, there was additional space between the origin and the GSU data on the x-axis; the dimensions of the paper did not allow an exact reproduction for this presentation. Two versions of this graph were initially drawn--one with GSU's bar shaded and one without. With the shaded graph, GSU's placement near the y-axis made the area too gray--the GSU bar blended in with the gradations of the y-axis. The addition of color might have alleviated this problem.

Figure 4 is a regional comparison of the amounts of state appropriations given to members of SUG, and was part of a comparative data exchange. It was included in a report on the results of that exchange, and was distributed to internal administrators. Since administrators were less likely to be familiar with the participants in the data exchange group, the full names of the

institutions are provided, and the graph presented horizontally. In this case, shading of GSU's standing is appropriate. As it is located in the middle of the graph, the added highlight facilitates the institution's location.

Figure 5 is a comparison of enrollments of self-declared metropolitan universities. The table has also been included in the Fact Book for the last five years. Full names of institutions have again been included for recognition purposes, and the GSU entry is printed in boldface for ease of location. The data is grouped according to a classification system developed by the Carnegie Commission. Research universities are included for their similarity in size, degree level and academic aspirations. This format is one of the easiest and best ways of displaying complex, additive information across multiple cases. Presenting information on minority enrollment in column format invites comparisons, because the eye is naturally drawn down the length of the column. It also demonstrates the diversity that characterizes the enrollment of many metropolitan universities. For example, it can be readily seen that GSU has one of the largest minority enrollments for the group. This format is suggested for situations where the aim is to highlight the relative standing of the institution.

For the graphic novice, the works of Edward R. Tufte are both informative and inspiring: The Visual Display of Information, Cheshire, Conn.: Graphics Press, 1983; and Envisioning Information, Cheshire, Conn.: Graphics Press, 1990.

> To envision information--and what bright and splendid visions can result--is to work at the intersection of image, word,

> number, art. The instruments are those of writing and typography, of managing large data sets and statistical analysis, of line and layout and color. And the standards of quality are those derived from visual principles that tell us how to put the right mark in the right place. (Tufte, 1990, p. 9)

While certain of his examples may not be applicable for institutional research purposes, the books are worth the investment as sources of ideas.

Tailoring

The institutional researcher must tailor each report to the audience for which it is destined. Reports which are ultimately released to the public require a different format and level of information specificity than those which will be considered by members of a university administration. Within the university, academic and business contingents each require not only different data, but each group may not understand the same background information as the other and may require extrapolation in different areas.

For instance, the information in Figure 1 was targeted toward an audience which was familiar with the context of the University System. The inclusion of the entire system in the graph would have obscured the point of the presentation through information overload. Therefore, the examples were pruned to a small group of institutions on a similar level--those offering advanced degrees. Because it served as an adjunct to an oral presentation, the information in the graph could be displayed in its most spare and

dramatic form--questions about other institutions were answered by the president.

Figures 3 and 4, on the other hand, were developed for use by administrators with specialized information needs. These people would require detailed information on every institution in the system/exchange group in order to make exact comparisons and to disseminate accurate information.

Figures 2 and 5 were developed for an audience which would perhaps only have a cursory knowledge of the institution. These tables have give full names of institutions, and provide more detailed explanations of the data being presented. In addition, at the bottom of each table the source of the information is given. This is done both for substantiation and identification, as well as for facilitation of access to additional or more detailed facts.

Conclusion

The thesis of this paper is that cross-institutional comparisons can be one of the most valuable services institutional researchers perform. Effective display of comparative information can make or break a presentation. It can clarify or obscure a point, enhance an institution's image or tarnish it.

Such comparisons put the institutional research function in the center of the institution's decision-making activities. Institutional research's supporting role as a provider of data and information make it an integral part of the planning process. This exposure can provide visibility, credibility and validity for the

institutional research function if handled in the correct manner. In order to be useful and applicable, examples for comparison must be chosen with care--they must be similar in mission, amount of funded research, degree level and degrees awarded, academic orientation and/or admissions. It is often the case that different sets of peer institutions may have to be collected for different independent and dependent variables. The method of presentation must also be selected with care, with appropriate visual aids for the intended audience. The report itself must also be tailored to the audience to which it is presented. Different formats and levels of information specificity are required for audiences with dissimilar familiarity with the information being presented.

In sum, the researcher's presentation of comparative data may be as important in the long run as the data itself. A researcher's skill may be shown in knowing which comparisons are likely to place the institution in the correct light and in prominently displaying important data. In this way, institutional researchers can escape the perceptual ivory towers in which they are often placed, and show themselves to be team players.

Figure 1.

Academic Square Feet / Quarter Credit Hours Taught

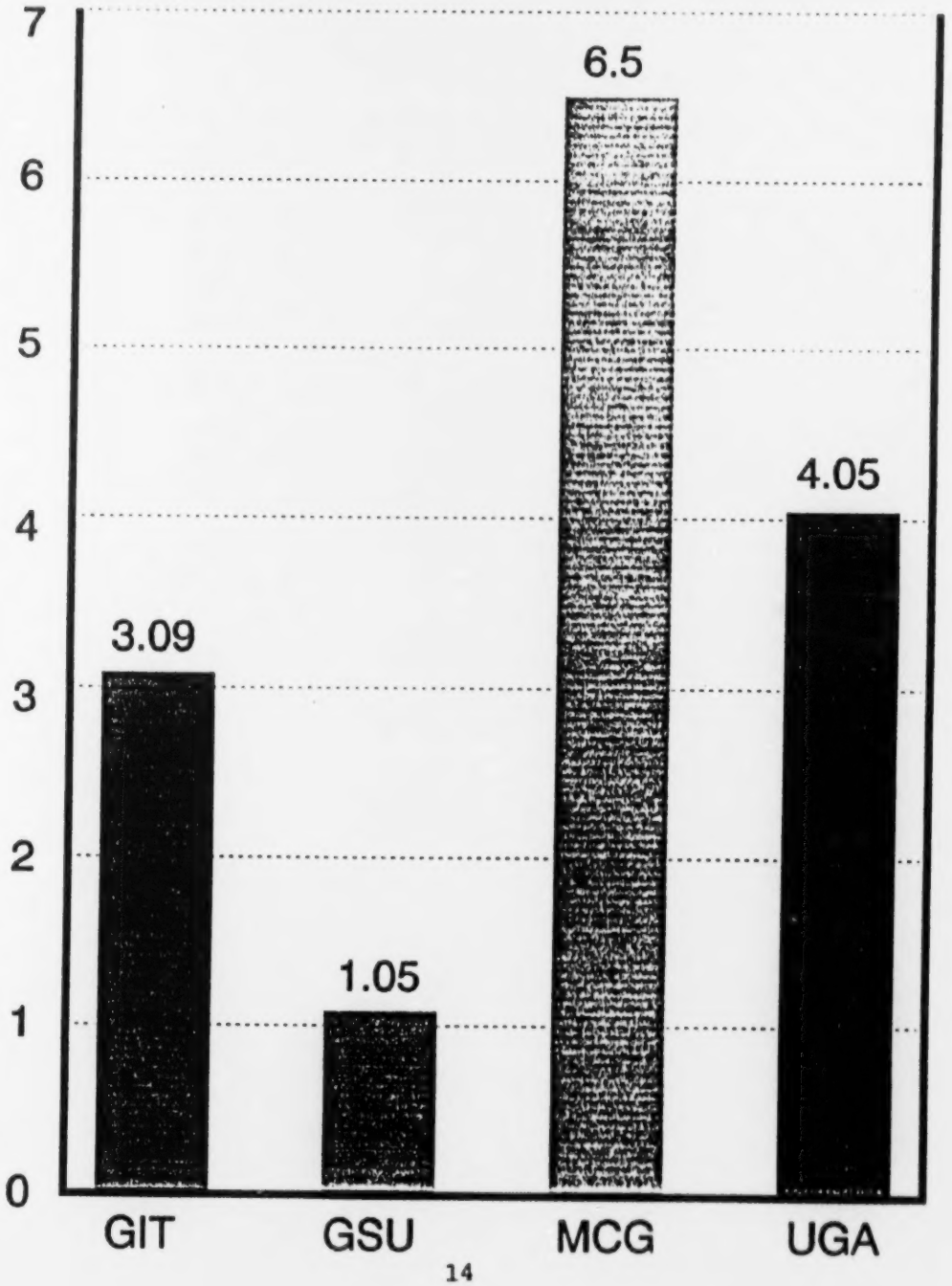

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Figure 2.

Comparative Space and Utilization Information: Fall Quarter 1989

INVENTORY OF FACILITIES (SQ. FT.) BY CLASSIFICATION
UNIVERSITY-LEVEL INSTITUTIONS
FALL 1989

Institution	Academic	Administrative	Faculty and Student Support	Total
Georgia Institute of Technology	1,877,153	231,658	1,129,753	3,238,564
Georgia Southern University	646,529	107,158	635,558	1,389,245
Georgia State University	837,135	160,335	184,487	1,181,957
Medical College of Georgia	1,063,584	377,747	163,980	1,605,311
University of Georgia	4,859,981	632,968	2,054,196	7,547,145

UTILIZATION OF GENERAL CLASSROOMS
FALL 1989

Institution	Enrollment	Number of General Classrooms	Student Contact Hour Per Sq. Ft.
Georgia Institute of Technology	12,090	100	.83
Georgia Southern University	11,238	127	1.41
Georgia State University	23,039	139	1.94
Medical College of Georgia	2,386	39	.42
University of Georgia	27,448	208	1.15

AVERAGE WEEKLY PERCENT OF GENERAL CLASSROOMS IN USE FOR SELECTED HOURS
FALL 1989

	MORNING 8:00-11:00 A.M.	AFTERNOON 12:00-3:00 P.M.	EVENING 5:00-8:00 P.M.
Georgia Institute of Technology	50%	48%	6%
Georgia Southern University	73%	64%	11%
Georgia State University	81%	37%	71%
Medical College of Georgia	27%	22%	3%
University of Georgia	74%	64%	10%

SOURCE: Director of Space Utilization and Allocation, based upon Regents' Facilities Inventory And Room Utilization Reports and University System of Georgia Information Digest, 1989-90

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Figure 3.

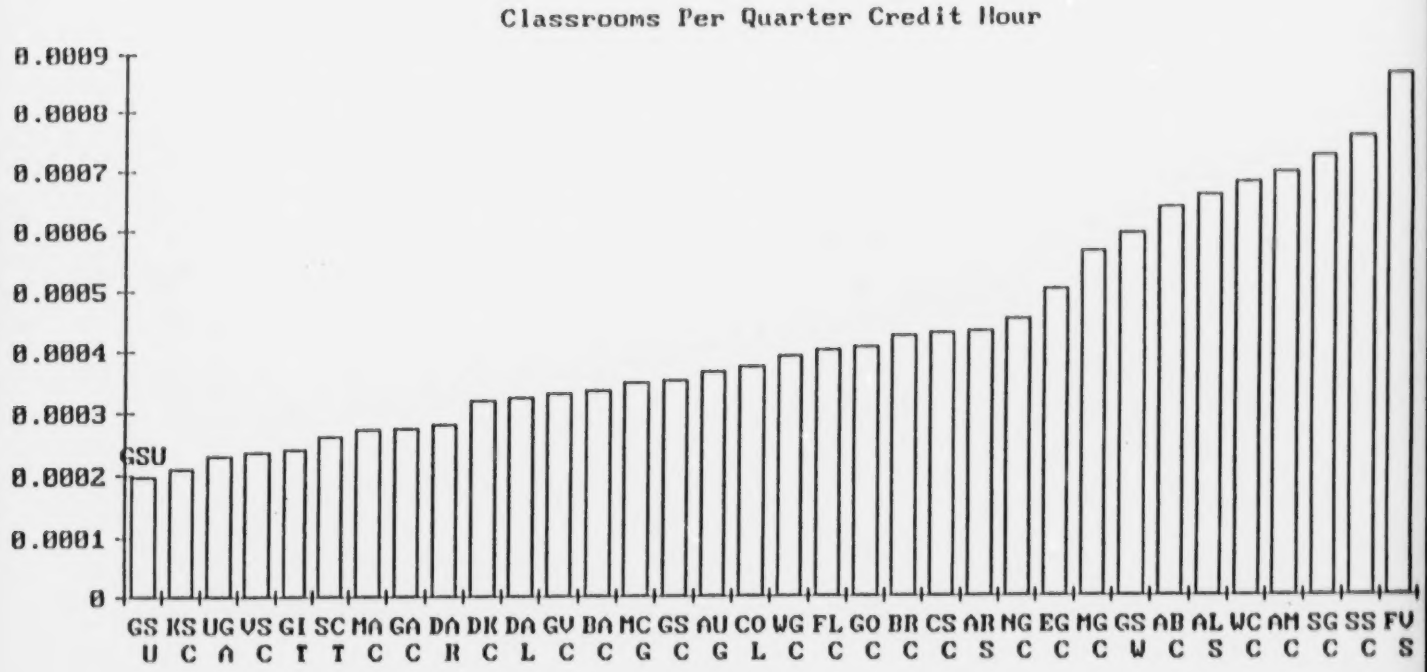
Classrooms Per Quarter Credit Hour
0.0009
0.0008
0.0007
0.0006
0.0005
0.0004
0.0003
0.0002
0.0001
0
GSU
GS KS UG VS GI SC MA GA DA DK DA GV BA MC GS AU CO WG FL GO BR CS AR NG EG MG GS AB AL WC AM SG SS FV
U C A C T T C C R C L C C G C G L C C C C C S C C C W C S C C C C S

Figure 4.

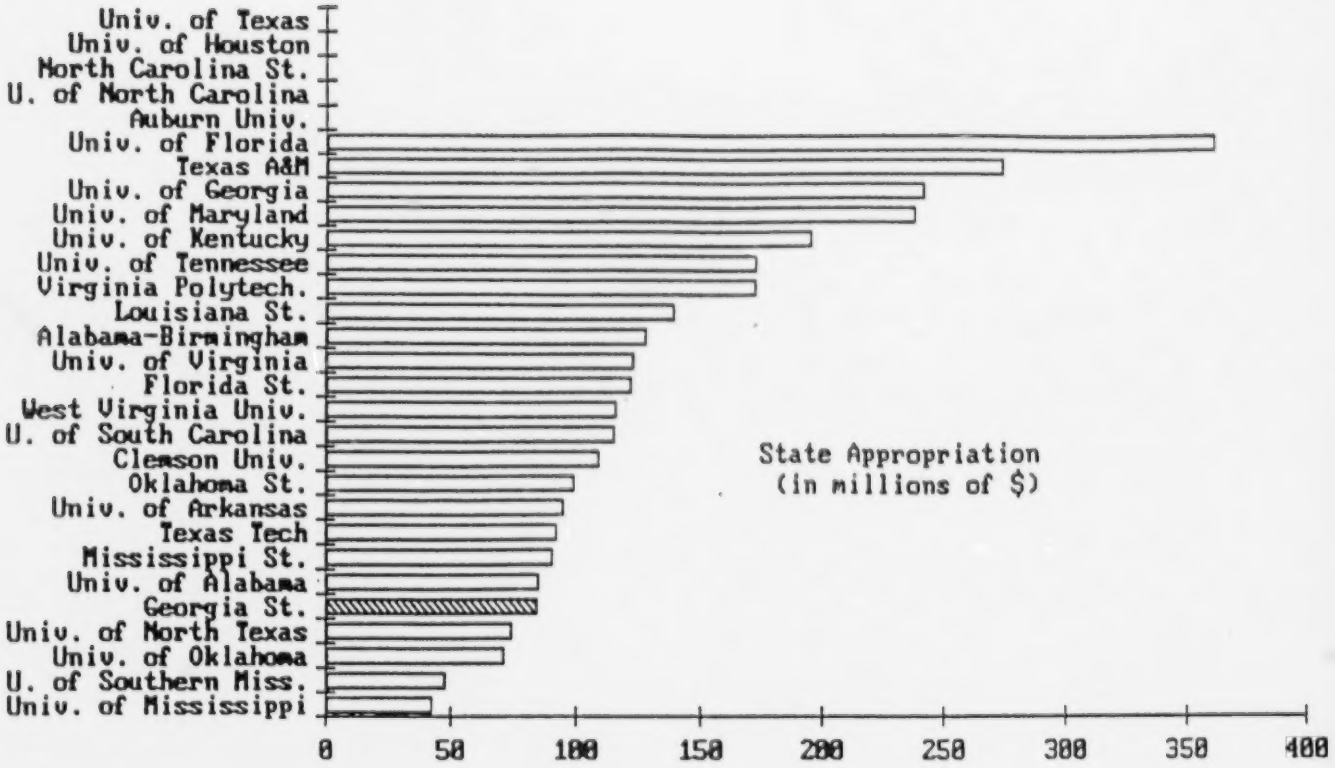
Univ. of Texas
Univ. of Houston
North Carolina St.
U. of North Carolina
Auburn Univ.
Univ. of Florida
Texas A&M
Univ. of Georgia
Univ. of Maryland
Univ. of Kentucky
Univ. of Tennessee
Virginia Polytech.
Louisiana St.
Alabama-Birmingham
Univ. of Virginia
Florida St.
West Virginia Univ.
U. of South Carolina
Clemson Univ.
Oklahoma St.
Univ. of Arkansas
Texas Tech
Mississippi St.
Univ. of Alabama
Georgia St.
Univ. of North Texas
Univ. of Oklahoma
U. of Southern Miss.
Univ. of Mississippi
State Appropriation
(in millions of $)
0
50
100
150
200
250
300
350
400

Figure 5.

ENROLLMENT PROFILE OF SELECTED METROPOLITAN UNIVERSITIES
FALL 1990

	Total N	Native American %	Asian %	Black %	Hispanic %	White %	Foreign %	Unknown %	Other %
Research Universities I									
University of Illinois, Chicago	25,320	0.3	14.0	9.6	9.2	56.9	5.9	3.6	N/A
University of Pittsburgh	28,120	0.1	2.3	6.7	0.6	85.3	5.1	N/A	N/A
Research Universities II									
Wayne State University	33,872	0.6	3.7	22.5	1.8	66.3	5.2	N/A	N/A
Doctorate-Granting Universities I									
Georgia State University	23,386	0.4	4.6	16.6	2.0	73.6	2.8	N/A	N/A
University of Louisville	23,610	0.3	2.1	9.1	0.8	85.9	1.8	N/A	N/A
Memphis State University	20,786	0.2	2.3	18.1	0.4	78.6	N/A	N/A	N/A
University of Houston	33,117	0.5	8.9	8.0	9.3	67.1	6.2	N/A	N/A
University of Wisconsin, Milwaukee	25,380	0.7	2.0	6.2	2.4	86.2	2.6	N/A	N/A
University of South Florida	32,360	0.1	2.7	4.6	5.5	84.7	2.4	N/A	N/A
Doctorate-Granting Universities II									
University of Alabama, Birmingham	15,356	0.1	1.2	15.3	0.3	79.2	3.9	N/A	N/A
University of New Orleans	15,329	0.5	2.6	12.3	4.7	77.7	2.1	N/A	N/A
Cleveland State University	19,220	0.6	2.1	11.4	1.7	74.0	N/A	9.7	0.5

NOTES: The classification is based upon the scheme developed by the Carnegie Commission (1987). Metropolitan universities are self-declared and acknowledged in mission statements.

SOURCE: Acting Director of Institutional Research